

Remarks

In the Specification, paragraphs have been amended to correct editorial minor problems.
Claims 1-23 remain in this application.

Drawing Objections

The specification has been amended to make the drawings consistent with specification. The drawings stand objected to because the specification contained the reference character "3.1" which did not appear within the drawings. Reference character "3.1" within the specification has been amended to refer to "polyurethane layer 3" and is consistent with the numeral contained within Figure 2. The specification has also been amended to include reference character 2.3 as a "polyamide layer 2.3" and is consistent with the numeral contained within Figure 4.

Rejection under 35 U.S.C. 102 over U.S. Patent No. 5,024,891 to Yoshiga et al. and U.S. Patent No. 4,645,710 to Baitinger et al.

The '891 patent does not describe adhering a polyamide resin-metal laminate to insulation material with at least two adhesion layers as claimed which is effective for enhancing the strength in the manufacture of the insulation material.

For example, Yoshiga is concerned with "a polyamide resin-metal laminate with an epoxy resin coating wherein a polyamide resin is firmly bonded to a metal surface." (Col 1, ln. 4-6). Yoshiga does not teach multiple adhesion layers, a metal layer and a plastic layer as a coating for insulation material, but instead teaches only a single layer bonding of polyamide resin to a metal surface. Yoshiga does teach the use of crystalizing plastic when heating during extrusion during the manufacture of insulation materials.

In the present invention, several adhesion layers are employed to increase adhesion between the metal and plastic layers as well between the coating material and insulation material. By using this coating layer during the manufacturing of insulation material, the plastic layer protects the coating, especially from tearing and as a result, the insulation material gains solidity and surface strength.

Similarly, the '710 patent does not describe a coating for insulation material that includes at least two adhesive layers, a metal layer and a plastic layer containing a plastic that crystallizes when heated – all of which improve adhesion of the layers, enhance the strength in the manufacturing of the insulation material and protect the coating, especially from tearing.

Baitinger teaches a foam core of polyurethane with a polyamide and other types of adhesive that adhere the facer material of aluminum foil to the foam core. (Col 1, lines 56-57; Col. 1, line 66-Col. 2,

line 29.) However, Baitinger lacks at least two adhesive layers which improve adhesion between the aluminum layer and the plastic layer, as well as between the insulation material and coating layer. Baitinger uses an adhesive material composed of polyamides and others, and achieves strength between the bond of the foam material and facer material (i.e. aluminum foil) because of a chemical interaction. (Col. 2, lines 62-67.) Reaction with foam core isocyanate groups.

The present invention does use at least two adhesive layers to improve adhesion between the metal and plastic layer and between the insulation and coating layer. An adhesive polyamide is not used to increase strength as in Baitinger, but rather a separate plastic layer and an additional adhesion layer is used to improve adhesion between the plastic layer and its surrounding layers.

Rejections under 35 U.S.C. 103 over U.S. Patent No. 4,645,710 to Baitinger et al. in view of Yoshiga et al.

Baitinger does not describe using at least two adhesive layers as claimed and does not recognize the problems solved by the present invention. Baitinger describes the advantages of a foam-adhesive-foil arrangement to increase the peel strength of the foam to foil bonds. Baitinger's use of polyamide and other adhesive materials was to "seal pinholes in the facer materials" and prevent permeation of air into the foam core. (Col. 4, lines 4-6). Therefore, Baitinger is using a foam-adhesive-foil material arrangement in order to prevent permeation of air to reach the foam surface.

The use of such foam-adhesive-foil material departs from the present invention in both structure and operation. First, Baitinger teaches using the polyamide as the adhesive layer and Yoshiga teaches using a heat-treated epoxy resin to improve the interlaminar bonding. Neither patent cited teaches nor suggests using at least two adhesive layers, a metal layer and a plastic layer. Further, by providing added adhesion between the coating layers and between the coating layer and insulation material, improved interlaminar strength is achieved. The combination of Baitinger et al. and Yoshiga et al. neither describe nor suggests using at least two adhesive layers as the structure for the insulation coating layer.

Secondly, the operation of using multiple adhesive layers achieves improved adhesion between the coating layer and between the coating layer and insulation material. Baitinger does not recognize or describe the advantage of using multiple adhesion layers along with a separate plastic layer to achieve solidity and surface strength within the insulation material during manufacture. Upon crystallization of the plastic layer, part of the coating for the insulation material, the plastic layer becomes rigid and helps protect the coating, especially from tearing. Baitinger et al. utilizes a polyamide adhesive to form a strong interlaminar bond between the foam and foil, improve peel strength and to serve as a gas or

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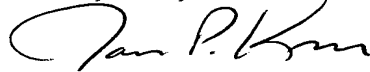
air barrier to the foam. Baitinger does not suggest using multiple adhesive layers along with a metal and plastic layer in order to allow the insulation material to gain solidity and surface strength through a firm coating layer. Hence, the combination of Baitinger et al. and Yoshiga et al. does not describe at least two adhesive layers, a metal substrate and a polyamide layer as claimed that functions as described.

Conclusion

In view of the above amendments and remarks, applicant respectfully requests allowance of the pending claims. The Commissioner is hereby authorized to charge any additional fees which may be required in this application to Deposit Account No. 06-1135.

Respectfully submitted,

Fitch, Even, Tabin & Flannery



James P. Krueger
Registration No. 35,234

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FITCH, EVEN, TABIN & FLANNERY
120 S. LaSalle St., Suite 1600
Chicago, Illinois 60603
Telephone: (312) 577-7000
Facsimile: (312) 577 7007

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